GSA

Prince Jonah Kuhio Kalaianaole Federal Building & United States Courthouse

ENERGY STAR® Building

PBS 9 GSA Taking the Lead

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Where did it start??

- **Executive Order 13123**
  - ***Greening the Government Through Efficient Energy Management***
  - **(Supersedes Executive Order 12902)**
- Operational Cost Reduction

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How did the building get the ENERGY STAR® rating?

- **Scored 99 out of a 100. Top 1% in the country.**
  - Measured on a scale of 0 to 100, a building needs to earn a score of 75 or greater. The Prince Kuhio Federal Building earned a score of 99.
- **Only Federal facility in the State of Hawaii.**
- **Received designation in 1999.**
- **2002 Private commercial building designated. Ali`i Place in downtown Honolulu.**

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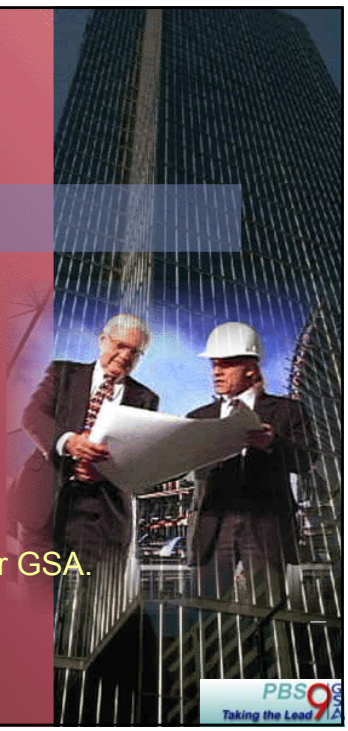
Projects Performed

- Lighting Retrofit & EMS Project
  - 1996 FEMP Award
- Chiller Plant Retrofit
  - 1998 FEMP Award
  - 1998 HECO Energy Award
  - 1998 Contracting Innovation Award for GSA.



Chiller Plant Project

- Feasibility Study started by HECO through MEH.
- Existing chiller plant is 18 years old, R12 refrigerant, cooling towers need replacement.
- Alternatives reviewed for new chiller plant.

Chiller Plant Project (Cont).

- Existing Plant:
  - 2 - 1000 Ton Cent. Chillers (R12)
  - 2 - 60 Ton Cent. Chillers (R22)
  - 2 - 1200 Ton Cooling Towers, 4 Cell
  - Constant volume CW pump system
- New Plant
  - 2 - 950 Ton Cent. Chillers (R-123)
  - 1 - 200 Ton VSD Cent. Chiller (R-22) for OT
  - 1 - 60 Ton Recp. Chiller (R-22) for EU
  - 2 - 1050 Ton Cooling Towers, 2 Cell
  - Pri./Sec. Pump System

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New Cooling Tower

- 2 - 1050 Ton Cooling
- 2 Cell
- Mfr. Baltimore Air Coil

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New Centrifugal Chiller

- 2 - 950 Ton Centrifugal Chiller
- R-123
- Mfr. Trane

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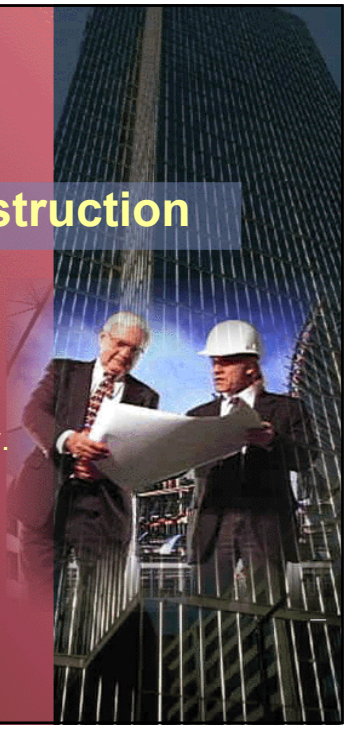
Chiller Plant Project Construction

- Design started by MEH.
- Construction started by Continental Mechanical of Hawaii (GC).
- Project Substantially Complete in May.
- Final Acceptance/Commissioning of the system was completed in September 22, 1997. 23 months from start to finish.



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Project Highlights…

- New plant layout addresses maintenance and service access issues.
- Project was fast tracked because of short performance timeframe.
- New plant provides optimum efficiency during both normal and after hour operations.

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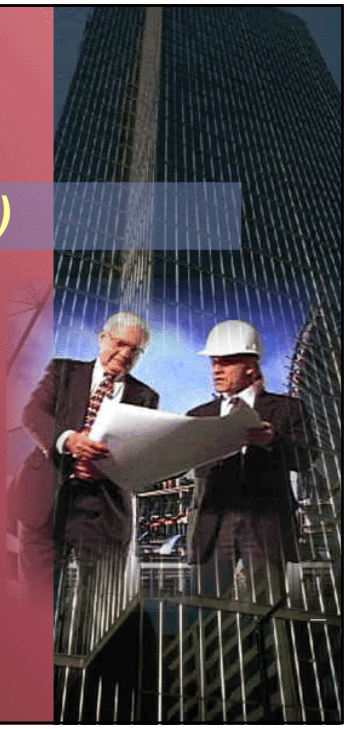
Project Highlights *(cont.)*

- New 200 Ton chiller primarily for after hours support has a variable frequency drive (VFD).
- New Cooling Towers were over sized for improved efficiency.
- First known application of ASHRAE's BACnet communication protocol in the State of Hawaii.



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Financial Terms of the Project

- Financing obtained by HECO through Potomac Federal
- Amount Financed $1,837,556
- Mo. Payment by GSA to HECO $18,338
- Finance Term: 15 Years (180 Mos.)
- Interest Rate is 8.725%
- NOTE: Can be paid off at any time.

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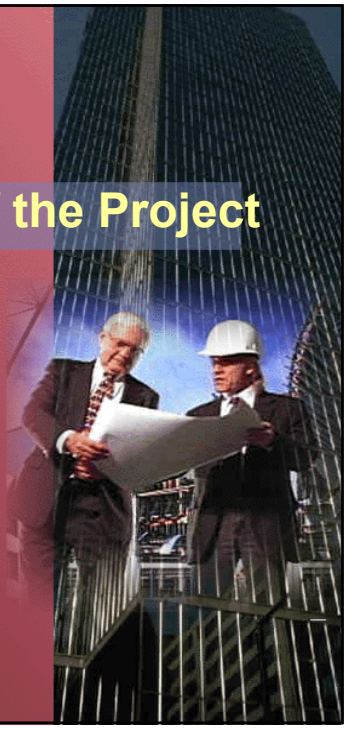
Financial Performance of the Project

- Life Cycle Cost Analysis comparing old plant to new showed a net savings of $1,451,290
- Savings to Investment Ratio of 2.49
- Estimated energy savings 1,727,051 kWh
- Base Year 1996, April 1997 – First Chiller Installed
- 1997 – saved 1,410,000 kWh – Net Gain of $25,291



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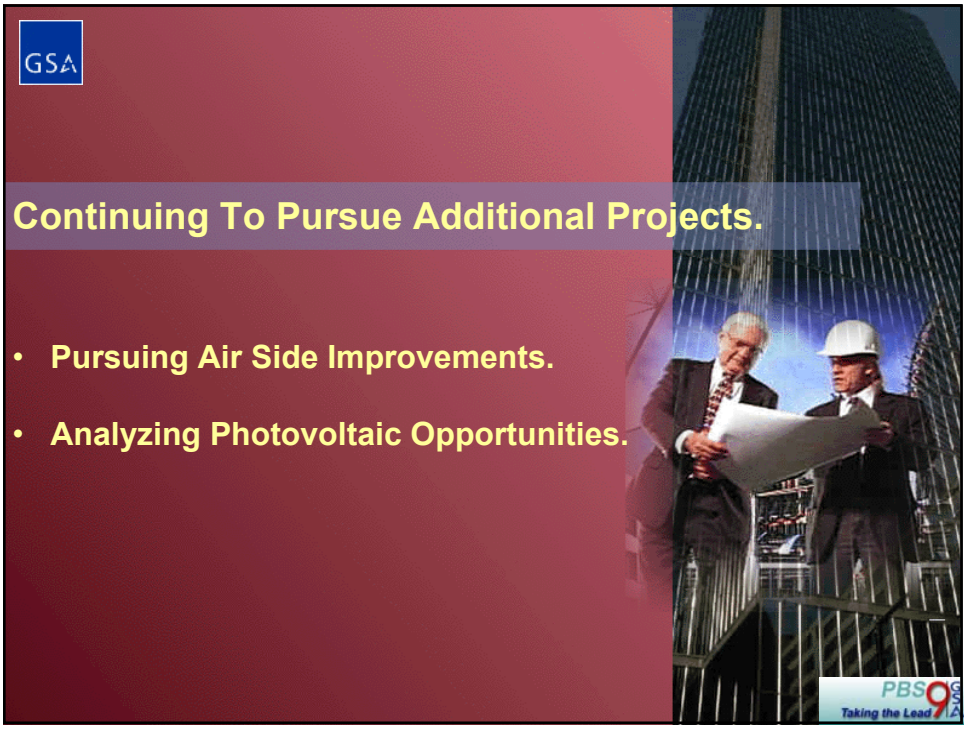
Where Are We Now?

•Since April 1997, saved 11,738,400 kWh

•April 1997 thru May 2001 costs savings of $519,201

•Met EO 13123, reduction goal (2010) since 1998.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Continuing To Pursue Additional Projects.
• Pursuing Air Side Improvements.
• Analyzing Photovoltaic Opportunities.
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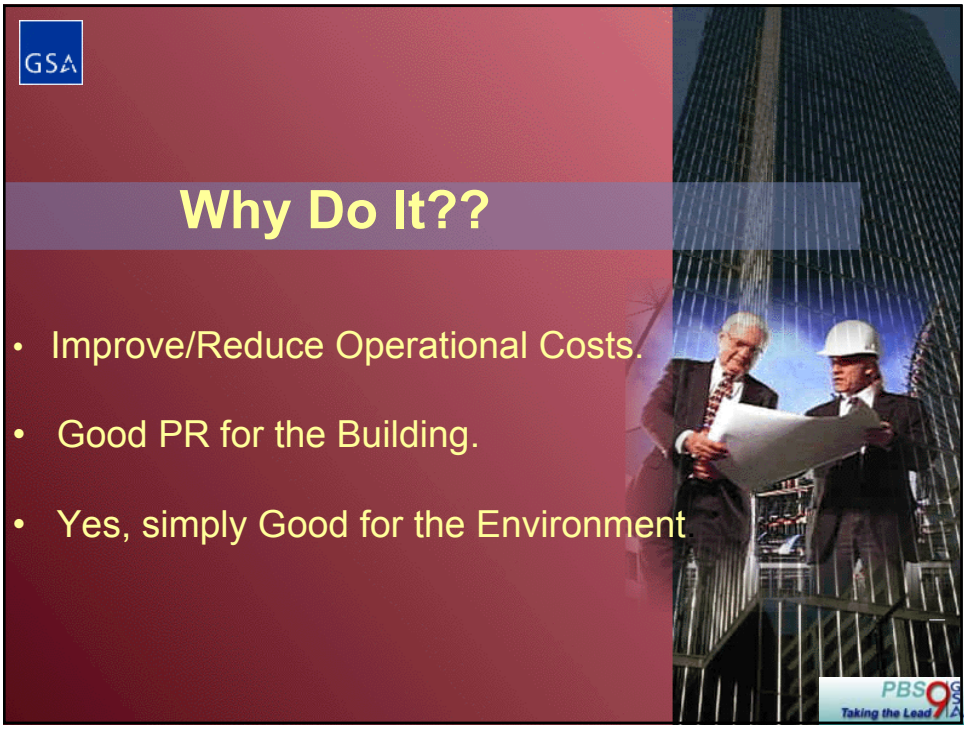
Taking the Lead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Why Do It??
• Improve/Reduce Operational Costs.
• Good PR for the Building.
• Yes, simply Good for the Environment.
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Need Help???

Great Tools are Out There for YOUR Use:

- HECO Power CD – Energy Solutions
- DOE-FEMP Web Site
  - www.eren.doe.gov/femp
- EPA-Energy Star Web Site
  - www.energystar.gov

Acknowledgements & Thank You

- **DOE-FEMP**
- **HECO**
- **GSA Energy Services**
- **Contractors**

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In Closing….

The question should not be if you should become an Energy Star Building.

But **When!!!**

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Never Forget - It Can Be Done!

Aloha and Mahalo!

Gerald *"Joe"* Melanson
Senior Property Manager
GSA Honolulu Property Management Office